



Sensitivity of soils to water erosion with respect to morphometric characterization of karstic zones in Lebanon

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In Lebanon, the sensitivity of different forms to water erosion is not yet clearly identified, notably when understanding the water flow regime is not sufficient. This is the case of the karstic terrain, which occupies a big region of the country (65% of its area). These terrains are distributed in localities having various lithologic and soil properties and they are characterized by different responses to carbonate dissolution. In this study, a full typology of the Lebanese karstic terrain is developed. Four karstic zones have been identified, i.e. the dolines zone, the lapies zone; the covered karst zone; and the open karst zone. They vary in topographic form, in dissolution response due to the impact of the climate, and in geographic location altitudes over 2000; between 1000 and 1500 m; between 500 and 1500 m; and between 500 and 2000 m. Field observations reveal that different soil properties characterize these zones as well as various water flow regimes.

The statistical interpretation of field data (earth pillars, linear channels, soil etching, soil drift) indicates that the karstic terrain can be considered as having a relatively low level of water erosion. In fact, the median volumes of soil losses are equal to 0.91, 0.08, 2.89 and 0.02 tons/ha/year in the dolines zone, the lapies zone; the covered karst zone; and the open karst zone.